Betula alleghaniensis - Fagus grandifolia - Aesculus flava / Viburnum lantanoides / Aster chlorolepis - Dryopteris intermedia Forest

COMMON NAME	Yellow Birch - American Beech - Yellow Buckeye / Hobblebush / Appalachian
SYNONYM	Southern Appalachian Northern Hardwood Forest (Typic Type)
PHYSIOGNOMIC CLASS	Forest (I)
PHYSIOGNOMIC SUBCLASS	Deciduous forest (I.B)
PHYSIOGNOMIC GROUP	Cold-deciduous forest (I.B.2)
PHYSIOGNOMIC SUBGROUP	Natural/Semi-natural (I.B.2.N)
FORMATION	Lowland or submontane cold-deciduous forest (I.B.2.N.a)

ALLIANCE *Betula alleghaniensis - Fagus grandifolia - Aesculus flava* Forest Alliance

CLASSIFICATION CONFIDENCE LEVEL 1

USFWS WETLAND SYSTEM Upland

RANGE

Globally

This community occurs at high elevations in the southern Blue Ridge of North Carolina, Tennessee, and Virginia.

Great Smoky Mountains National Park

This community was sampled on the Mount Le Conte and Cades Cove quadrangles. Historic samples are from the Thunderhead Mountain quadrangle (4360 to 5000 feet elevation). On the Cades Cove quadrangle, historic and recent samples of this community ranged from 4320 to 4840 feet elevation. Samples from the southern portion of the Cades Cove quadrangle came from the upper slopes of Gregory Bald; upper slopes north and west of Gregory Bald; a gap west of Forge Knob; and Gregory Ridge, northwest of Rich Gap. In the central and eastern portion of the Cades Cove quadrangle, this community was sampled from the exposed slopes and ridges in the vicinity of Devil's Tater Patch; a ridge east of Mollies Ridge Shelter; and from the northwest slope of McCampbell Knob. In the southern portion of the Mount Le Conte quadrangle this community was sampled on the high north slopes of Masa Knob (5400 feet) and on steep west-facing slopes north of Mount Le Conte (5100 feet).

ENVIRONMENTAL DESCRIPTION

Globally

This forest occurs at high elevations (typically over 4000 feet), on exposed landforms such as open, north-facing slopes.

Great Smoky Mountains National Park

Samples of this community ranged from 5400 to 4320 feet elevation, averaging 4720 feet. It is found on high, exposed slopes, ridges, and gaps, typically with northerly exposures.

MOST ABUNDANT SPECIES

Globally

Stratum	Species
Tree canopy	*Betula alleghaniensis, Fagus grandifolia, (Aesculus flava)*
Subcanopy	*Acer pensylvanicum, Acer spicatum*, *Acer saccharum*
Tall shrub	*Viburnum lantanoides*
Herbaceous	*Ageratina altissima* var. *roanensis, Aster chlorolepis, Athyrium asplenioides, Carex pensylvanica, Dryopteris intermedia*

Great Smoky Mountains National Park

Stratum	Species
Tree canopy	*Betula alleghaniensis, Fagus grandifolia, Aesculus flava*
Short shrub	*Rubus canadensis*
Herbaceous	*Ageratina altissima, Athyrium filix-femina* ssp. *asplenioides, Dryopteris intermedia*

CHARACTERISTIC SPECIES

Globally

Aesculus flava, Betula alleghaniensis, Fagus grandifolia, Acer spicatum, Ilex montana, Viburnum lantanoides, Ageratina altissima var. roanensis, Aster chlorolepis, Carex pensylvanica, Dryopteris intermedia

Great Smoky Mountains National Park

Aesculus flava, Betula alleghaniensis, Fagus grandifolia, Acer spicatum, Ilex montana, Viburnum lantanoides, Ageratina altissima var. roanensis, Allium burdickii, Aster chlorolepis, Carex pensylvanica, Dryopteris intermedia, Oxalis montana, Solidago glomerata, Stellaria corei, Stellaria pubera, Streptopus amplexifolius

VEGETATION DESCRIPTION

Globally

The canopy is dominated by various mixtures of *Betula alleghaniensis, Fagus grandifolia,* and sometimes *Aesculus flava.* Other canopy trees may be present but are of minor importance (*e.g. Acer saccharum, Prunus serotina, Quercus rubra, Halesia tetraptera* var. *monticola*). Common subcanopy trees include *Acer pensylvanicum, Acer spicatum*, and *Acer saccharum.* A shrub stratum may be absent to moderately dense. *Viburnum lantanoides* is a common shrub. Other possible shrub species include, but are not limited to, *Hydrangea arborescens, Ilex montana, Rubus canadensis*, and *Sambucus racemosa* var. *pubens*. Herbaceous cover can be dominated by sedges or ferns or be comprised of a mixture of sedges, ferns, and other forbs. Typical herbaceous species include *Ageratina altissima* var. *roanensis, Aster chlorolepis, Athyrium asplenioides, Carex pensylvanica, Dryopteris intermedia, Solidago caesia* var. *curtisii, Stellaria pubera, Stellaria corei*, and *Streptopus roseus*.

Great Smoky Mountains National Park

The canopy is dominated by various mixtures of *Betula alleghaniensis, Fagus grandifolia,* and *Aesculus flava*. Other species that may occasionally have high coverage in the canopy include *Halesia tetraptera* var. *monticola, Quercus rubra*, and *Acer saccharum.* The subcanopy is usually not well-developed and consists of canopy species. Additional species that may be present in the subcanopy include *Acer pensylvanicum, Amelanchier laevis*, and *Prunus serotina*. At the highest elevations *Picea rubens* may be part of the subcanopy, while at lower elevations *Magnolia acuminata* may be present in the subcanopy. Shrubs are typically sparse but can be moderately dense. Common shrubs include *Fagus grandifolia, Rubus canadensis, Acer spicatum, Viburnum lantanoides*, and *Ilex montana*, although other species may occur. Herb coverage varies between occurrences but is composed of a mix of sedges, ferns, and other forbs. Species richness is low in comparison with other deciduous forests, with typically less than 30 total species per 0.1 hectare. Common herbaceous dominants include *Ageratina altissima, Athyrium filix-femina* ssp. *asplenioides, Carex* spp. *(e.g. Carex debilis, Carex intumescens, Carex pensylvanica*), and *Dryopteris intermedia*. Other typical herbs *include Aster divaricatus, Solidago caesia* var. *curtisii, Stellaria pubera*, and *Viola* spp. *(e.g. Viola blanda, Viola canadensis, Viola hastata, Viola pubescens),* although other species may occur.

OTHER NOTEWORTHY SPECIES

No information

CONSERVATION RANK G3G4

RANK JUSTIFICATION

This is a broadly defined association meant to cover typical "northern hardwood forests" of the southern Blue Ridge. If needed, more associations may be defined based on differences related to geology and other environmental variables. If broadly defined, this type is limited in distribution to western North Carolina, eastern Tennessee, and southwestern Virginia, and in extent by its requirement for higher elevations (typically over 4000 feet). Most of the area of this community type is on public lands administered by the U.S. Forest Service (Pisgah, Nantahala, Cherokee, and Jefferson national forests) and National Park Service (Great Smoky Mountains National Park and Blue Ridge Parkway). Most sites for this community are relatively secure from most threats. Exotic plants and animals, such as garlic mustard (*Alliaria petiolaris*) and the gypsy moth, may represent significant threats to this community.

DATABASE CODE CEGL007285

COMMENTS

Globally

This is a broadly defined association meant to cover typical "northern hardwood forests" of the southern Blue Ridge. If needed, more associations may be defined based on differences related to geology and other environmental variables. This association differs from *Aesculus flava - Betula alleghaniensis - Acer saccharum / Acer spicatum / Caulophyllum thalictroides - Laportea canadensis* Forest (CEGL004973) by occurring on more exposed landforms and having floristic differences related to the lower moisture regime and less nutrient-rich soils.

Great Smoky Mountains National Park

Lower elevation examples of this community on Cades Cove (below 4600 feet) have high canopy coverage by *Quercus rubra* and may grade into forests in the *Quercus rubra* Montane Forest Alliance. Examples are often disturbed by European Wild Boar (*Sus scrofa*).

REFERENCES

Brown 1941, McLeod 1988, Newell et al. 1997, Schafale and Weakley 1990